What is claimed is:

1. A temperature simulating device for simulating the propellant temperature within ordnance wherein the propellant has thermal properties and a cross-sectional area and the ordnance has housing, comprising:

a propellant assembly comprising:

a grain simulant having thermal properties, being substantially inert, wherein the thermal properties of the grain simulant approximate the thermal properties of the propellant;

means for measuring temperature imbedded into the grain simulant;

means for recording temperature data connected to the temperature measuring means; and,

means for housing the propellant assembly wherein the housing means simulate the housing of the ordnance.

2. The temperature simulating device of claim 1, wherein the grain simulant comprises a rubber material.

3. The temperature simulating device of claim 2, wherein the rubber material comprises hydrin rubber.

4. The temperature simulating device of claim 2, comprising a plurality of temperature measuring means imbedded into the grain simulant.

5. The temperature simulating device of claim 4, comprising four temperature measuring means imbedded into the grain simulant.

6. The temperature simulating device of claim 4, wherein the temperature measuring means comprise thermocouples.

7. The temperature simulating device of claim 1, further comprising a grain simulant cross-sectional area approximate to the propellant cross-sectional area.

8. The temperature simulating device of claim 7, further comprising first and second ends of the grain simulant and an insulating material substantially covering the first and second ends.

9. The temperature simulating device of claim 8, wherein the insulating material comprises a polystyrene foam.

10. The temperature simulating device of claim 9, wherein the housing means comprises:

a rocket motor tube;

two end plates substantially covering the insulating material; and,

two retaining rings that attach the end plates to the rocket motor tube.

11. The temperature simulating device of claim 10, wherein the rocket motor tube comprises a shortened rocket motor tube.

12. The temperature simulating device of claim 8, further comprising:

an external power source for the temperature recording means connected to an end plate; and,

data output connections for the temperature recording means connected to an end plate.

13 A method of simulating the temperature of the propellant temperature within ordnance wherein the propellant has thermal properties and a cross-sectional area and the ordnance has housing, comprising the steps of:

providing a device comprising a propellant assembly comprising a grain simulant having thermal properties, being substantially inert, wherein the thermal properties of the grain simulant approximate the thermal properties of the propellant, means for measuring temperature imbedded

into the grain simulant, means for recording temperature data connected to the temperature measuring means, and, means for housing the propellant assembly wherein the housing means simulate the housing of the ordnance;

providing means for data accessing for data compiled by the temperature recording means; and,

initiating the data accessing means.

14. The method of simulating temperature of claim 13, wherein the data accessing means comprises a location remote to the device.